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10/683,712	10/10/2003	Georg Bogner	12406-127001 / P2001,0258	2057
26161	7590	04/06/2009	EXAMINER	
FISH & RICHARDSON PC			NGUYEN, JOSEPH H	
P.O. BOX 1022			ART UNIT	PAPER NUMBER
MINNEAPOLIS, MN 55440-1022			2815	
NOTIFICATION DATE		DELIVERY MODE		
04/06/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

[PATDOCTC@fr.com](mailto:PATDOCTC@fr.com)

<b>Office Action Summary</b>	<b>Application No.</b> 10/683,712	<b>Applicant(s)</b> BOGNER ET AL.
	<b>Examiner</b> JOSEPH NGUYEN	<b>Art Unit</b> 2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 December 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-4,6-15,17-25,27,28,30,31,33-49,52 and 54-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4,6-15,17-25,27,28,30,31,33-49,52 and 54-64 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 October 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-646)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No./Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No./Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 6-7, 9-10, 12, 15, 17-22, 27-28, 30-31, 33-35, 38-40, 43-46, 49, 52 and 54-63 rejected under 35 U.S.C. 102(e) as being anticipated by Brunner et al. (U.S. Patent No. 6,645,783).

Regarding claim 1, Brunner et al. discloses in figure 1 a lead frame for a radiation emitting component comprising a mount part having at least one wire connecting area (area where wire bond 11 connects electrode 3); an opening formed therein and existing completely through the mount part; and at least one external electrode connecting strip (portion of electrode 2 extends at portion 6); and a separately manufactured thermal connecting part 13 disposed in said opening and fastened into said mount part to form an electrical connection with the at least one external electrical connecting strip, said thermal connecting part having at least one chip mounting area and a reflector well (portion of electrode 2 formed on the wall and formed of copper, which is reflective. As such, this portion of electrode 2 can function as "reflector well")

surrounding said chip mounting area, wherein the thermal connecting part extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part. See column 5.

It is noted that the thermal connecting part 13 extends vertically through the opening in the mount part.

Regarding claims 2-7, 9-10, 12 and 15, Brunner et al. discloses in figure 1 all the structures set forth in the claimed invention.

Regarding claims 17, 30 and 52, Brunner et al. discloses in figure 1 a housing for one light emitting component comprising a lead frame including a mount part having at least one wire connecting area; an opening formed therein and extending completely through the mount part; and at least one external electrical connecting strip (portion of electrode 2 extends at portion 6);and a separately manufactured thermal connecting part 13 disposed in said opening and fastened into said mount part to form an electrical connection with the at least one external electrical connecting strip, said thermal connecting part having at least one chip mounting area; wherein the thermal connecting part extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part; and a housing base body formed from a molding compound, wherein said lead frame embedded in said base body to pass out said connecting strip from said base body, said thermal connecting part has a thermal connecting surface thermally connectable from the outside, and the housing is a surface mounted housing having bearing surface for the surface mounting with the

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thermal connecting surface extending to the bearing surface for conducting heat to an exterior surface to which the bearing surface mounts the housing.

Regarding claims 18-22, 27, 28, 31, 33-35, 38-40, 43-46, 49, and 54-63

Brunner et al. discloses in figure 1 all the structures set forth in the claimed invention.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8, 23-25, 36-37 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner et al.

Regarding claim 8, Brunner et al. discloses in figure 1 the reflector well has a height greater than the chip 1 but not necessarily the reflector well having height no greater than twice a height of the chip. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Brunner et al. by including the reflector well having height no greater than twice a height of the chip, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 23, Brunner et al. discloses in figure 1 the reflector well has a height greater than the chip 1 but not necessarily an overall height of said reflector

being no grater than four times a height of the chip. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Brunner et al. by including an overall height of said reflector being no grater than four times a height of the chip, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 24, Brunner et al. discloses in figure 1 the reflector walls and the reflector surfaces are at certain angles with respect to the main emission direction, but not necessarily at different angles with respect to the main emission direction. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Brunner et al. by including the reflector walls and the reflector surfaces are at different angles with respect to the main emission direction, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 25, Brunner et al. discloses in figure 1 substantially all the structure set forth in claim 25 except for an angle between the reflector walls and the main emission direction being greater than an angle between said reflector surfaces and the main emission direction. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Brunner et al. by including an angle between the reflector walls and the main emission direction being greater than an angle between said reflector surfaces and the main emission direction,

since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 36 and 64, Brunner et al. discloses in figure 1 the semiconductor chip 1 and the radiation permeable compound 4 comprises a certain volume. Brunner et al. nevertheless does not exclusively disclose the radiation permeable compound having a volume with the formula  $V \leq qH$  where H is a height of the chip and q is a scaling factor having a value less than  $10 \text{ mm}^2$ . It is noted that Brunner et al.' chip 1 comprises a height as shown in figure 1B. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Brunner et al. by including the radiation permeable compound having a volume with the formula  $V \leq qH$  where H being a height of the chip and q being a scaling factor having a value less than  $10 \text{ mm}^2$ , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 37, similar to claim 36 above, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Brunner et al. by including q being a scaling factor having a value equal to  $7 \text{ mm}^2$ , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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5. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner et al. in view of Onda Mamoru (JP-58218153)

Regarding claims 13-14, Brunner et al. discloses substantially all the structures set forth in claims 13-14 except for the at least one external electrical connecting strip having a surface coating of Ag. However, Onda Mamoru discloses in figure 1 the lead frame has its surface coated with Ag such that the lead frame displays excellent properties in the adhesive strength (English CONSTITUTION). In view of such teaching, it would have been obvious at the time of the present invention to modify Brunner et al. by including the at least one external electrical connecting strip having a surface coating of Ag so as to obtain the external connecting strip with excellent adhesive strength.

6. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (U.S. Patent No. 6,516,516) in view of Carey et al. (U.S. patent No. 6,274,924).

Regarding claim 17, Lee et al. discloses in figure 3 a housing for one component 20 comprising a lead frame including a mount part having at least one wire connecting area; an opening formed therein and extending completely through the mount part; and at least one external electrical connecting strip 12; and a separately manufactured thermal connecting part 26 disposed in said opening and fastened into said mount part to form an electrical connection with the at least one external electrical connecting strip, said thermal connecting part having at least one chip mounting area; wherein the thermal connecting part extends through the opening in the mount part and

connects to the mount part at the opening to transfer heat away from the mount part; and a housing base body 24 formed from a molding compound, wherein said lead frame 11 embedded in said base body to pass out said connecting strip 12 from said base body, said thermal connecting part has a thermal connecting surfaces thermally connectable from the outside, and the housing 24 is a surface mounted housing having a bearing surface for the surface mounting with the thermal connecting surface extending to the bearing surface for conducting heat to an exterior surface to which the bearing surface mounts the housing. See column 3. Lee et al. does not disclose the component is light emitting component. However, Carey et al. discloses in figure 2 a light emitting element package comprising a light emitting component 16. In view of such teaching, it would have been obvious at the time of the present invention to modify Lee et al. by including the component being a light emitting component so as to obtain a light emitting component package herein.

Regarding claims 18-19, Lee et al. discloses in figure 3 all the structures set forth in the claimed invention.

7. Claims 41, 42, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner et al. in view of Kumamoto et al. (U.S. patent No. 6,129,993).

Regarding claims 41 and 48, Brunner et al. discloses in figure 1 substantially all the structures set forth in claims 41 and 48 except for the chip being mounted on the chip mounting area by a silver solder. However, Kumamoto et al. discloses in figure 8

the chip 8 is mounted to the chip mounting area 11 by a silver solder 13 (col. 7, lines 1-4). In view of such teaching, it would have been obvious at the time of the present invention to modify Brunner et al. by including the chip being mounted to the mounting area by a silver solder so as to firmly connect the chip to the package and thus effectively dissipate heat away from the chip.

Regarding claims 42 and 47, it is well known in the art that silver comprises a melting temperature greater than 260C.

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-4, 6-15, 17-25, 27-28, 30-31, 33-49, 52 and 54-64 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (571) 272-1734. The examiner can normally be reached on Monday-Friday, 8:30 am- 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/J. N./  
Examiner, Art Unit 2815

/Kenneth A Parker/  
Supervisory Patent Examiner, Art Unit 2815